Fact Sheet

Date:

NPDES Permit Number: AK-005314-7

The U.S. Environmental Protection Agency (EPA) Plans to Reissue a Wastewater Discharge Permit to:

BP Exploration (Alaska), Inc.

900 East Benson Boulevard
P.O. Box 196612
Anchorage, Alaska 99519-6612

EPA Proposes NPDES Permit Reissuance.

EPA proposes to issue a *National Pollutant Discharge Elimination System* (NPDES) permit to BP Exploration (Alaska), Inc. The proposed permit sets conditions on the discharge of pollutants from the **Liberty Island oil and gas development and production project** (the facility) off Alaska's North Slope at 70E16'45" north latitude, 147E33'29" west longitude. The Liberty Island project is a new source in the offshore subcategory of the oil and gas extraction point source category for the Outer Continental Shelf (OCS) of Foggy Island Bay, Beaufort Sea, Arctic Ocean. In order to ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged and places other conditions on the facility.

This Fact Sheet includes:

- the tentative determination of EPA to issue the permit,
- information on public comment, public hearing and appeal procedures,
- a description of the facility and proposed discharge,
- a map and description of the discharge location,
- a listing of past and proposed effluent limitations and other conditions, and
- technical material supporting the conditions in the permit.

EPA Invites Comments on the Proposed Permit.

EPA will consider all substantive comments before reissuing the final NPDES permit. Those wishing to comment on the proposed permit may do so in writing by the expiration date of the Public Notice. After the Public Notice expires and the public comments have been considered,

EPA Region 10's Office of Water Director will make a final decision regarding permit reissuance.

If no substantive comments are received, the tentative conditions in the proposed permit will become final and the permit will become effective upon issuance. If substantive comments are received, EPA will respond to the comments and the permit will become effective 30 days after its issuance date, unless a request for an evidentiary hearing is submitted within 30 days.

Documents Are Available for Review.

The proposed NPDES permit and related documents can be reviewed at EPA's Regional Office in Seattle between 9:00 a.m. and 4:00 p.m., Monday through Friday. To request copies and other information, contact the NPDES Permits Unit at:

United States Environmental Protection Agency, Region 10
1200 Sixth Avenue, OW-130
Seattle, Washington 98101
(206) 553-0523 or
1-800-424-4372 (from Alaska, Idaho, Oregon and Washington)

USEPA, Anchorage Operations Office
222 West 7th Ave, #19
Anchorage, Alaska 99513-7588
(907) 271-5083

USEPA, Juneau Operations Office
410 Willoughby Ave
Juneau, Alaska 99801-1795
(907) 586-7619

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BP Exploration (Alaska), Inc.
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2 TYPE OF FACILITY AND ACTIVITY

2.1 Facility Location and Description

The Liberty Island oil and gas development and production project (the facility) will develop oil and natural gas reserves beneath Foggy Island Bay in the Alaskan Beaufort Sea at 70E16' 45" north latitude, 147E33' 29" west longitude. The Liberty oil field is located approximately 5 miles offshore in Foggy Island Bay (Figure 1). BP Exploration (Alaska), Inc. (BPXA) plans to construct an artificial gravel island between the McClure Islands and the coast in water depths of about 22 feet (ft) on federal OCS oil and gas lease OCS-Y-1650 (Sale 144) in Foggy Island Bay. The facility will support field development drilling and hydrocarbon production. A sub-seabed pipeline will bring sales-quality oil onshore to connect with the Badami Pipeline. A detailed project description is provided in the Environmental Impact Statement (EIS) for the Liberty Development and Production Plan (MMS 2000).

2.2 Process Description

The Liberty Island oil and gas development and production project is described in detail in the following reports:

- EIS for the Liberty Development and Production Plan (MMS 2000),
- Liberty Development Project Development and Production Plan (BPXA 1998a),
- Ocean Discharge Criteria Evaluation in Support of the Liberty Development Project NPDES Permit Application (Woodward-Clyde 1998a),
- Section 103 Marine Protection, Research and Sanctuaries Act, Dredged material Disposal Site Evaluation in Support of the Liberty Development Project (Woodward-Clyde 1998b), and
- Liberty Development Project Environmental Report (LGL et al.1998).

The facility will be a self-contained offshore drilling and pumping operation with oil and gas processing facilities on an artificial gravel island and with two buried, bundled pipelines to: one a 12-inch oil pipeline and the other a 6-inch gas pipeline. After the construction and occupation of the artificial island, the facility will drill at least 23 wells: one disposal, 14 production, six water injection, and two gas re-injection. All drilling muds and cuttings will be injected downhole into the oil field through a disposal well; no surface discharges of muds and cuttings are planned under normal operations.

2.3 Permit and Application History

The Facility is a new source discharger proposed for construction on a to-be-completed offshore gravel island. It does not exist at this time and has no previous permit history. BPXA submitted NPDES application Form 1 and Form 2D to EPA Region 10 on March 27, 1998, in application for NPDES permit. no. AK-005314-7; the application was timely and complete.

3 PROPOSED DISCHARGE

3.1 Nature, Amount and Composition of Discharge

Proposed discharges from the facility consist of the process water system that includes continuous flush water (Discharge 001a; 21,600 gpd average), desalination unit wastes (Discharge 001b; 40,320 gpd average), temporary sanitary and domestic wastewater (Discharge 001c; 9,072 gpd average), and seawater treatment plant (STP) filter backwash (Discharge 001d; 22,118 gpd average). The facility will discharge fire suppression system test water on an intermittent basis (Discharge 002; typically no discharge). Deck drainage sumps are proposed in the island design (Discharges 003, 004 and 005) and the water collected in the sumps will be injected into the island's disposal well; discharge from the sumps to the marine environment will only occur in the event of an upset condition (i.e., 100 year storm event). During construction of the island the facility will discharge a return flow of construction dewatering (sea-seepage) out of the gravel-filled construction area back into the sea (Discharge 006; 1,000,000 gpd average).

! **Facility Process Water Discharge – Outfall 001.** Four waste streams will be commingled, dechlorinated and discharged through marine Outfall 001: Continuous Flush System, Potable Water Desalination System brine blowdown, Sanitary and Domestic Wastewater, and Seawater Treatment Plant backwash, Sodium metabisulfite will be injected into the commingled stream to reduce total residual chlorine (TRC) concentrations to levels that meet the State of Alaska water quality standard for TRC.

Continuous Flush System Effluent – Discharge **001a**. The Liberty Island engineering design requires a continuous flush of seawater to flow through the process system lines to prevent freezing. Chlorine in the form of calcium hypochlorite will be introduced into the process water system to reduce the biofouling of equipment. It is estimated that the low levels of TRC will be consumed in the water drawn through the Continuous Flush System. Prior to ocean discharge, this effluent will be commingled and dechlorinated with the other process water waste streams. The temperature increase attributed to heat transfer from process water equipment (e.g., pumps, piping, etc.) is nominal for the Continuous Flush System, Discharge 001a. The effluent pH will vary slightly from ambient conditions as a result of the chlorination/ dechlorination process; however, the pH is expected to be within 0.1 pH units of ambient levels.

Desalination Unit Wastes – Discharge **001b**. The potable water desalination unit will continuously create distilled water, resulting in a brine effluent with a dissolved solids concentration at twice the ambient water concentration, regardless of the rate. The

desalination unit uses thermal vapor compression technology to generate water suitable for human consumption. Seawater is boiled inside a bank of enhanced surface tubes located on one side of the heat transfer surface. The excess feed water that does not evaporate (blowdown) contains concentrated dissolved solids and salts (brine) which are nearly twice the concentration of ambient seawater. Continuous injection of maintenance chemicals including scale control additives and foamer, at concentrations which have been determined to be safe for drinking water, will be added to the feed line prior to desalination. Chlorine gas that enters the desalination unit will be off-gassed and vented into the atmosphere due to the heat and pressure of the process; it's expected that the desalination brine will not contain TRC.

The engineering specifications provided by the manufacturer indicate the effluent will have a temperature increase of 5°C to 7°C over ambient conditions. The manufacturer determined that total dissolved solids (TDS) would increase to 65 to 70‰ for ambient seawater containing 36‰. It is expected that the desalination brine will have salinity between 60‰ and 65‰.

Sanitary and Domestic Wastewater – Discharge **001c**. All domestic and sanitary waste will pass through the wastewater treatment system. Secondary treatment of the domestic sewage will be accomplished using a D-series FAST System (Fixed Activated Sludge Treatment). A disinfectant system using ultraviolet (UV) light will be placed in the discharge stream between secondary treatment and final disposal. The standard discharge procedure for the facility will be to inject sanitary and domestic wastewater into a subsurface disposal well. However, during facility construction and periods when the injection well is not available, the wastewater treatment plant effluent will be commingled with the seawater treatment plant backwash, continuous flush and potable water desalination waste streams for discharge through Outfall 001. The resulting commingled stream will be dechlorinated.

Sludge resulting from the secondary treatment will be injected into the on-site subsurface disposal well. In the event that the injection well is not available, the sludge will be disposed of onshore at an approved facility within the Prudhoe Bay area.

Seawater Treatment Plant Filter Backwash – Discharge **001d**. Backwash from the strainer and hydrocyclone will have an elevated concentration of total suspended solids (TSS) that will be directly dependent upon the TSS concentrations at the seawater intake. The flow will be commingled with the continuous flush effluent, potable water desalination brine, and any temporary discharge of sanitary and domestic wastewater to Outfall 001. This waste stream will be discharged through the outfall after passing through the dechlorination process.

Heat will be added to the remaining seawater, some of which will be routed to the seawater intake as required to prevent ice formation. The remaining process seawater will be deaerated. Biocide, anti-foam agent, scale inhibitor and corrosion inhibitor will be added to this fluid stream which will then be routed to the enhanced oil recover wells for injection. Since the biocide, antifoam agent and scale and corrosion inhibitors are added

downstream of the backwash flow, these additives will be injected through the disposal well into the geologic formation along with the seawater and will not be discharged into the marine environment.

Natural variability of ambient TSS determines variability of the TSS discharge. In the summer when TSS is high, the TSS discharges will be high; and in winter when the TSS is low, the TSS discharge will also be low. Summer seawater treatment plant backwash is expected to have average daily TSS concentrations of 4,600 milligrams per liter (mg/L) with maximum concentrations of 28,000 mg/L. Average daily concentrations in the winter are expected to be 780 mg/L, with maximum levels of 1,600 mg/L.

! **Fire Control System Test Water – Outfall 002.** The fire control system will provide emergency seawater supply throughout the Facility to suppress and extinguish fires on an as-needed basis. This system is designed to pump up to 2,500 gpm of seawater through a header and distribution system to sprinklers, hydrants, monitors and deluge valves. Fresh potable water will be supplied to maintain water pressure in the header and distribution lines, producing minor dilutions in total dissolved solids within the test water. Weekly tests of the fire control pumps will circulate untreated seawater from the seawater intake sump through the pumps and directly back in the seawater intake sump.

! **Deck Drainage – Outfalls 003, 004 and 005.** The Facility will employ state-of-the-practice engineering controls to monitor, control and dispose of deck drainage waters without discharging these fluids into the surrounding marine environment. The facility will incorporate best management practices (BMPs) to help prevent spills and leaks from entering the deck drainage collection system.

In the event of a petroleum or chemical spill at the Facility, all fluids collected in the deck drainage sumps will be evaluated for disposal and pumped either to the injection well or to a designated storage area pending shipment to an approved hazardous waste disposal facility.

In the event of a large flow of stormwater runoff (upset condition), such as that caused by heavy rains or by waves overtopping the island during a severe storm, the sumps will not have adequate capacity to collect, store for inspection, and be pumped to the injection well or holding tank on a batch-basis. In these cases, the sumps will overflow into the ocean. Underflow baffles are designed to retain and contain any floating oil in each sump.

! **Construction Dewatering – Outfall 006.** Water discharged during construction dewatering will consist of Beaufort Sea water that has percolated through the clean gravel fill and has collected in the site excavation and casing. Clean gravel fill used to construct the island will contain fine sediments which will be subsequently discharged with the excavation and casing water. A pump rated at no greater than 650 gallons per minute (gpm) will be used as required to dewater the construction trenches and pipeline caisson. The discharge hose will be placed into water adjacent to the island (and under the ice if present) .

3.2 Treatment of Wastewater Prior to Discharge

Treatment of the wastewaters consists of the (1) dechlorination of combined Discharge 001 on an as-needed basis and (2) secondary treatment and ultraviolet irradiation of the WWTP's Discharge 001c to this combined effluent. The fire control test water (Discharge 002),

deck drainage sumps (Discharges 003, 004 and 005) and the construction dewatering (Discharge 006) aren't treated for pollutant control prior to discharge because the only additions to these wastewaters are low levels of heat and fresh water.

4 RECEIVING WATER

4.1 Nature of Foggy Island Bay and the Beaufort Sea

Within Foggy Island Bay, the relatively shallow shelf depths act as a mixing zone for the clearer, generally colder and more saline ocean waters to interact with the more turbid, sediment-bearing, fresher inflows from the Sagavanirktok, Kadleroshilik and Shaviovik rivers.

During the summer open-water season, the timing and rate of discharges from the Sagavanirktok, Kadleroshilik and Shaviovik rivers determine the amount of freshwater available for distribution in the marine environment of Foggy Island Bay. The first open water typically occurs in late June to early July and, as warming continues into summer, the sea ice melts, resulting in about 75 days of open-water. After sea ice breakup, wind speed and direction become the key factors in determining the fate of freshwater advected along the coast. Wind speed and direction also influence water level variations that, in turn, play a key role in the exchange rates between brackish nearshore and offshore marine waters.

Wind history (speed and direction) is of prime importance in determining the fate of freshwater advected along the coast by currents during the open-water season. The prevailing summer winds along the Beaufort Sea coast are from the east, so the nearshore currents respond to this wind stress by flowing westward. This current regime transports river discharges westward alongshore such that freshwater is mixed with the ambient nearshore waters.

During winter, the Beaufort Sea is covered by sea ice that begins to form in late September. Freeze-up of the waters is completed by the end of October, with ice growing to a maximum thickness of 2.3 m (7.5 ft) by April (MMS 1996). Ice cover persists on average for 290 days until spring warming results in river breakup and subsequent sea ice melting near the river and stream deltas. Temperature and salinity profiles collected under the sea ice within the Beaufort Sea exhibit uniform cold, 29°F (-1.5°C) , saline (32.4‰) marine waters (Montgomery Watson 1997, 1998). Under ice observations in the Beaufort Sea indicate very low current speeds aligned with bathymetry, which results in an easterly or westerly flow. The average current speed observed during ice-covered conditions is less than 0.04 kt (2 cm/s) (Montgomery Watson 1997).

In February 1997 and March 1998, Montgomery Watson collected salinity and temperature measurements under the ice in the vicinity of the proposed pipeline route for the Facility. Under-ice water temperatures ranged from 4° to 0°C (28° to 32°F), with salinity ranging from 21 to 33 ‰. Ice thickness at the stations ranged from 3 to 5.3 ft (1.0 to 1.6 m), with total ice-free water depths of 0.3 to 17 ft (0.1 to 5.1 m) (Montgomery Watson 1997, 1998).

4.2 Description of the Biological Environment

Important biological features in the proposed Liberty Island area are discussed in the following sections. Sections 4.6 through 4.11 of the *Liberty Development Environmental*

Report (LGL et al. 1998) describe in detail the biological characteristics of the area. This source, along with the *Environmental Impact Statement (EIS) for the Liberty Development and Production Plan* (MMS 1998), provided the majority of the information summarized below.

Of the seven biological resource categories listed in the EIS for the Liberty Development and Production Plan, the following have the potential to be affected by permitted discharges from Liberty Island:

- Seals and polar pears,
- Marine and coastal birds,
- Lower trophic organisms (including plankton and boulder patch community members)
- Fishes, and
- Threatened and Endangered Species (specifically, the bowhead whale).

These five categories are briefly described below and are described in detail in the documents referenced above.

! Seals and Polar Bears. The “ice seals” (ringed, bearded and spotted seals) are usually observed in open-water areas during summer and early autumn. A few ringed and bearded seals were seen near the project area during the MMS aerial surveys. Spotted seals were not identified during these surveys (Frost et al. 1997). Boat-based marine mammal monitoring conducted from July 25 to September 18, 1996, in an area near and to the west of the proposed Facility, documented the presence of all three species of seals, with 92 percent ringed seals, 7 percent bearded seals, and 1 percent spotted seals (Harris et al. 1997). Site-specific BPXA-sponsored aerial surveys for ringed seals were initiated around Liberty Island in May/June 1997. These surveys, over landfast ice, found ringed seals widely distributed throughout the Liberty area, but no other seal species were encountered (LGL et al. 1998).

Polar bears are normally associated with the pack ice that is well offshore of the project area. Denning female bears, females with cubs, and subadult males may come ashore. Female bears with young cubs hunt in fast-ice areas. Most female polar bears den on pack ice, but five den sites on land have been identified within the onshore project area (LGL et al. 1998). Polar bears may be near the Facility at any time, although the animals are most likely to occur near the coast in the fall.

! Marine and Coastal Birds. An estimated 10 million individual birds representing over 120 species use the Beaufort Sea area from Point Barrow, Alaska to Victoria Island, NWT, Canada (Johnson and Herter 1989). Descriptions of marine and coastal birds in the Alaskan Beaufort Sea area have been presented in the Liberty Development Environmental Report (LGL et al. 1998) and the EIS for the Liberty Development and Production Plan (MMS 1998). Nearly all species are migratory, occurring in the Arctic from May through September. The most abundant marine and coastal birds in the Foggy Island Bay and the Facility areas include oldsquaw, glaucous gull, common eider, snow goose, red phalaropes, red-necked phalaropes, semipalmated sandpiper, dunlin and stilt sandpiper.

! Lower Trophic Organisms. Due to the low level of primary productivity in the Alaskan Beaufort Sea, plankton communities of this area are impoverished and are characterized by low diversity, low biomass and slow growth.

Areas in Stefansson Sound with dense rock cover (more than 25 percent rock cover) are known to contain a rich epilithic flora and fauna, including extensive kelp beds (Reimnitz and Toimil 1976). Isolated patches of marine life also occur in areas where the rocks are more widely scattered (10 to 25 percent rock cover). These areas of Stefansson Sound containing rocky substrate have been charted and are designated as the "Boulder Patch."

The boulders and attached dominant kelp species, *Laminaria solidungula*, provide habitat for a large number of invertebrate species. Sponges and cnidarians are the most conspicuous invertebrates. Photosynthesis is limited to a short period during the year when light is available and ice cover has receded. During this time, *Laminaria* stores food reserves until the winter and early spring when nutrients are available to support growth.

! **Fish.** The nearshore zone serves as a movement corridor for fishes that are intolerant of more marine conditions and as feeding habitat for both anadromous and marine fishes (Craig 1984). Arctic and least cisco, Arctic cod, dolly varden and fourhorn sculpin comprise 90 percent of the fish caught in nearshore Beaufort sea areas. The fish enter the nearshore waters at the start of breakup (early June) to feed during the summer. During open-water periods, anadromous fish are concentrated in the nearshore zone. The fish then return to low salinity water in deep channels of rivers and deltas to overwinter.

Marine species may be found in and adjacent to nearshore waters, including primarily Arctic cod, saffron cod, fourhorn sculpin, Arctic flounder and rainbow smelt (LGL et al. 1998). Arctic cod are the most dominant species in the Arctic Ocean and are the most abundant fish collected in the Prudhoe Bay region.

! **Threatened and Endangered Species.** Western Arctic bowhead whales winter in the central and western Bering Sea, summer in the Canadian Beaufort Sea, and migrate around Alaska in spring and autumn (Moore and Reeves 1993). Spring migration through the western Beaufort Sea occurs through offshore ice leads, generally from mid-April to mid-June. The migration corridor is located very far offshore of the Facility area; however, a few bowheads have been observed in lagoon entrances and shoreward of the barrier islands during MMS and LGL surveys (LGL et al. 1998). Autumn migration of bowheads into Alaskan waters occurs primarily during September and October. During fall migration, most of the bowheads sighted migrate in water ranging from 65- to 165-ft deep. These migration corridors are outside of the immediate discharge area. When passing the development area, most bowheads are in depths greater than65 ft, but a few occur closer to shore in some years (LGL et al. 1998).

In addition to the bowhead whale, there are three threatened or endangered bird species which may occur near the Facility area, but outside of the effects of the effluent discharge. The spectacled eider (*Somateria fischeri*) is the only endangered or threatened bird likely to occur regularly in the study area. The Alaska-breeding population of the Steller's eider (*Polysticta stelleri*) was listed as threatened on 11 July 1997 by the U.S. Fish and Wildlife Service (62 *Federal Register* 31748); this species may occur in very low numbers in the Prudhoe Bay area and may occur occasionally in the project area. The Arctic peregrine falcon (*Falco peregrinus tundrius*) had been listed as threatened, but the U.S. Fish and Wildlife Service removed it from the list on 5 October 1994 (59 *Federal Register* 50796). The Eskimo curlew, although historically present, is now considered to be extirpated from the area.

None of these species are expected to incur any effects outside of a zone of initial dilution of 100 feet radius around the points of discharge of Outfalls 001 and 006. Within this 1.4 acre

(62,832 sq. ft.) zone of dilution increased loads of sediments and other total suspended solids may change the composition of but will not eliminate the neritic communities in the water column and the seafloor. The mixing zone area occupies less than 0.000000001 percent of the available habitat of this nature in the shallow coastal Beaufort Sea. This permit action is not likely to adversely effect any of the above-species listed as threatened or endangered under the Endangered Species Act.

4.3 Beneficial Uses of Foggy Island Bay and the Beaufort Sea

The Beaufort Sea is classified by the Alaska Water Quality Standards as Classes II A(i)(ii)(iii), B(i)(ii), C and D for use in aquaculture, seafood processing and industrial water supply, water contact and secondary recreation, growth and propagation of fish, shellfish, aquatic life and wildlife, and harvesting for consumption of raw mollusks or other raw aquatic life.

5 BASIS FOR EFFLUENT LIMITATIONS AND MONITORING

5.1 General Approach

EPA followed the Clean Water Act, state regulations, and EPA's 1991 *Technical Support Document for Water Quality-Based Toxics Control* to develop the proposed effluent limits. In general, the Clean Water Act requires that the effluent limit for a particular pollutant be the more stringent of either the *technology-based limit* or the *water quality-based limit*. This proposed permit includes both technology-based and water quality-based limits. Technology-based limits are established based upon the level of treatment that is achievable using available technology. Water quality-based limits are designed to prevent exceedance of the Alaska water quality standards (AWQS) in the receiving water.

EPA proposes to authorize the applicant, BP Exploration (Alaska), Inc., to discharge wastewaters of Discharges 001, 001a, 001b, 001c, 001d, 002, 003, 004, 005 and 006 to the receiving water of Foggy Island Bay, Beaufort Sea. Limits and/or monitoring are proposed for Discharges 001, 001c and 006. No limits or monitoring are proposed for Discharges 001a, 001b and 001d, all of which are commingled prior to discharge and limited and monitored as Discharge 001. No limits are proposed for either the intermittent testing of the fire-control water system (002) or the intermittent stormwater discharges (003, 004 and 005).

5.2 Summary of Effluent Limitations

Table 1. Limits and Monitoring for Discharges 001, 001c and 006				
Parameter	**Average Monthly Limit**	**Maximum Daily Limit**	**Sampling Method and Frequency**	**Reported Values**
Combined wastewater, Discharge 001				
Flow, 001	0.1 MGD	0.2 MGD	Continuous recording, daily	Average monthly and maximum daily, MGD
TRC, 001	10 Fg/L	20 Fg/L	Grab, daily	Average monthly and maximum daily, Fg/L
Temperature, 001	no limit	no more than 10EC above or below ambient	Recording or meter for effluent and ambient, daily	Average monthly and maximum daily difference of effluent minus ambient, EC
Sewage plant, Discharge 001c				
Flow, 001c	10,000 gal/day	20,000 gal/day	Recording or meter, daily*	Average monthly and maximum daily*, MGD
TSS, 001c	30 mg/L; at least 85% removal	60 mg/L	Grab, weekly*	Average monthly and maximum daily*, mg/L; percent removal
BOD5, 001c	30 mg/L; at least 85% removal	60 mg/L	Grab, weekly*	Average monthly and maximum daily*, mg/L; percent removal
Fecal coliform bacteria, 001c	200 FC/100 ml	400 FC/100 ml	Grab, weekly*	Average monthly and maximum daily*, FC/100 ml
TRC, 001c	0.1 mg/L	0.2 mg/L	Grab, daily*	Average monthly and maximum daily*, mg/L
pH, 001c	no limit	no more than 8.5, no less than 6.5	Grab or meter, daily*	Minimum and maximum monthly values*, pH units
Construction dewatering, Discharge 006				
Flow, 006	no limit	no limit	Calculation or meter, daily*	Average monthly and maximum daily*, MGD
Oily sheen, 006	no visible sheen in effluent prior to discharge		Visual, hourly*	Time and date of the presence of a visible sheen; corrective action

Note: * Monitoring and reporting are required during periods of surface discharge only.

The proposed permit prohibits pollutant discharges that are not part of the normal operation of the facility as reported in the permit application in concentrations which violate Alaska Water Quality Standards.

The Permit limits all discharges from the facility as follows:

- The permittee shall not discharge any pollutant other than those listed in its application in concentrations which exceed applicable State water quality criteria at the end of the discharge pipe;
- There shall be no discharge of toxic and other deleterious substances;
- There shall be no discharge of floating solids or visible foam in other than trace amounts;
- The discharge of surfactants, dispersants and detergents shall be minimized; and
- Sludge removed from the treatment systems during cleaning of the treatment units shall not be reintroduced into the treatment system or discharged to waters of the United States.

5.3 Technology-based Evaluation

Section 301 of the Clean Water Act requires particular categories of industrial dischargers to meet technology-based effluent limitation guidelines. The intent of a technology-based effluent limitation is to require a minimum level of treatment for industrial and municipal *point sources* across the country based on currently available treatment technologies while allowing a discharger to choose and use any available pollution control technique to meet the limitations. Where EPA has not yet developed guidelines for a particular industry, EPA can establish permit limitations using Best Professional Judgment (BPJ; 40 CFR §§ 122.43, 122.44 and 125.3).

The permittee will provide secondary treatment for sanitary wastewater. EPA has established technology-based limits for the facility's sanitary wastewater (Discharge 001C) in this and other past permits based upon its best professional judgment that industrial sewage on the North Slope should and can be treated at a level comparable to municipal sewage. Sewage and other sanitary wastewater must receive secondary treatment for municipal facilities; secondary treatment uses filtration and biological treatment to control pollutant discharges. Part 133 of Title 40 of the Federal Code of Regulations requires that sanitary waste water be limited as follows: (1) the monthly averages of total suspended solids (TSS) and five-day biochemical oxygen demand (BOD5) shall not exceed 30 mg/L, the weekly averages for TSS and BOD5 shall not exceed 45 mg/L, and the percent removal of each during treatment shall be greater than 85% and (2) the pH of the effluent shall not be less than 6.0 nor greater than 9.0.

EPA has not established national effluent guidelines for waterflood systems.

5.4 Water Quality-based Evaluation

EPA has determined to use the Alaska Water Quality Standards to protect the water quality and beneficial uses of these coastal waters off Alaskan shores. Permit limits will be stringent enough to ensure that State water quality standards are met.

The most stringent State criteria for each pollutant regulated under the State's water quality standards is utilized in determining water quality-based limits within this NPDES permit. Temperature, pH, turbidity, sediment, residues, fecal coliform bacteria, total residual chlorine (TRC) and coagulants are potential pollutant discharges at the facility.

It is EPA's best professional judgment that the Alaska water quality criteria will be met outside of the 100 ft mixing zone of initial dilution around Outfalls 001 and 006. Dilution around Outfall 001 will generally exceed 1,000:1 and should always exceed 100:1; dilution around outfall 006 will generally exceed 100:1 and should always exceed 10:1.

Antidegradation of Water Quality. In proposing to reissue this permit, EPA has considered the State's antidegradation policy [18 AAC 70.015]. This policy states, in part, that in Alaska: "the existing water uses and the level of water quality necessary to protect the existing uses must be maintained and protected (and), if the quality of a water exceeds levels necessary to support propagation of fish, shellfish and wildlife and recreation in and on the water, that quality must be maintained and protected unless the department (ADEC)... allows the reduction in water quality...". The limits in the draft permit are consistent with and protective of the State water quality standards and the water quality of the receiving water. The draft permit is consistent with the State's antidegradation policy.

5.5 Summary of Effluent Monitoring

The Clean Water Act requires that monitoring shall be included in permits to determine compliance with effluent limitations. Monitoring may also be required to gather data for future effluent limitations or to monitor effluent impacts on the receiving water. The permittee will be responsible for conducting the monitoring and for reporting the results to EPA. Table I presents the proposed monitoring requirements based on the minimum sampling necessary to adequately monitor the facility's performance.

The proposed permit requires sampling whenever a bypass, spill, or non-routine discharge of pollutants occurs, if such a discharge could cause a violation of an effluent limit.

6 BASIS FOR BEST MANAGEMENT PRACTICES PLAN

The Clean Water Act and federal regulations authorize EPA to require *best management practices*, or BMPs, in NPDES permits. BMPs are measures for controlling the generation of pollutants and their release to waterways. For many facilities, these measures are typically included in the facility Operation & Maintenance plans (O&M) plans. BMPs are important tools for waste minimization and pollution prevention. EPA encourages facilities to incorporate BMPs into their O&M plans and to revise them as new practices are developed. The permittee has promoted its control of pollutant discharges through the use of BMP plans in the other similar facilities on Alaska's North Slope and will extend these practices to the Facility. The dechlorination of Discharge 001 and the underground injection of Discharge 001c are two wastewater treatment and management practices proposed for implementation by the permittee. The proposed permit requires the permittee to develop and implement BMP plan at the facility.

7 BASIS FOR ANNUAL REPORT

The proposed permit requires the permittee to complete and submit an annual report which compiles effluent monitoring data and reports permit violations, upset conditions, by-pass conditions, plant or process changes, and corrective actions undertaken to improve wastewater treatment and pollution prevention at the facility. The annual report provides a comprehensive record of wastewater discharge at the facility and supports improved understanding and management of the discharges and discussion of these discharges by the permittee and government representatives. Title 40 of the Code of Federal Regulations provides the regulatory basis for this requirement at sections 122.41 ("Conditions applicable to all permits"), 122.44(i) ("Monitoring requirements"), and 122.48 ("Requirements for recording and reporting of monitoring results").

8 PERMIT CONDITIONS FOR COMPLIANCE, RECORDING, REPORTING and OTHER GENERAL PROVISIONS

Sections § VI through VIII of the draft permit contain standard regulatory language that is required to be in all NPDES permits. The following sections of the permit are based largely upon 40 CFR Part 122, subpart C, "Permit Conditions" and on other referenced laws and regulations.

- Duty to Comply from 40 CFR § 122.41(a),
- Proper Operation and Maintenance from 40 CFR § 122.41(e),
- Duty to Mitigate from 40 CFR § 122.41(d),
- Toxic Pollutants from 40 CFR § 122.41(a)(1-2), § 122.44(b, e) and § 125.3,
- Removed Substances from 40 CFR § 122.41(a)(1) and (o) and CWA § 405(A),
- Need to Halt or Reduce Activity not a Defense from 40 CFR § 122.41(c),
- *Bypass* of Wastewater Treatment from 40 CFR § 122.41(m),
- *Upset* Conditions from 40 CFR § 122.41(n),
- Inspection and Entry from 40 CFR § 122.41(i),
- Penalties for Violations of Permit Conditions from 40 CFR § 122.41(a)(2-3),
- Duty to Provide Information from 40 CFR § 122.41(h),
- Records Contents from 40 CFR § 122.41(j)(3),
- Submittal of Reports from 40 CFR § 122.41(h, j and l),
- Retention of Records and Reports from 40 CFR § 122.41(j)(2),
- On-site Availability of Records and Reports from 40 CFR § 122.41(i)(2),
- Availability of Reports for Public Review from 40 CFR § 122.1(e) and § 122.7(1) and 40 CFR § 2.101,
- Planned Changes from 40 CFR § 122.41(l)(1),
- Changes in the Discharge of Toxic Substances from 40 CFR § 122.42(a),
- Anticipated Noncompliance from 40 CFR § 122.41(l)(2),
- Reporting of Noncompliance from 40 CFR § 122.41(l)(6-7) and § 122.44(g),
- Permit Actions from 40 CFR § 122.44(c) and 40 CFR § 122.61 - § 122.64,
- Duty to Reapply from 40 CFR § 122.41(b),
- Incorrect Information and Omissions from 40 CFR § 122.41(l)(8),
- Signatory Requirements from 40 CFR § 122.41(k),

- Property Rights from 40 CFR § 122.41(g),
- Severability from 40 CFR § 124.16,
- Transfers from 40 CFR § 122.41(l)(3),
- Oil and Hazardous Substance Liability from 40 CFR § 125.3, 40 CFR part 300, 33 CFR § 153.10(e) and section 311 of the Act,
- State Laws from 40 CFR § 122.1(f) and section 510 of the Act, and
- Reopening of the Permit from 40 CFR § 122.41(f) and § 122.44(c).

9 OTHER LEGAL REQUIREMENTS

9.1 Endangered Species Act

Pursuant to 40 CFR § 122.49(c), EPA has concluded that the localized effluent discharges authorized by this permit will have no effect on the continued existence of any endangered or threatened species and will not adversely affect their critical habitat; these local effects will be contained within an area of 1.4 acres and will consist of sediment-laden seawater of natural and local origins and trace levels of fecal coliform bacteria. Endangered species found in the vicinity of the project include the bowhead whale. Threatened species include the Steller's and spectacled eiders.

The draft permit, fact sheet and consistency determination will be submitted to the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) for review at the time of public notice. EPA is requesting USFWS and NMFS review of the draft permit and will consider their comments in the final permit decision.

EPA is requesting concurrence from USFWS and NMFS on its determination of "no effect" on these three threatened and endangered species. EPA will initiate consultation should new information reveal impacts not previously considered, should the activities be modified in a manner beyond the scope of the original opinion, or should the activities affect a newly listed threatened or endangered species.

9.2 Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act requires EPA to consult with NMFS with respect to the issuance of this NPDES permit concerning its impacts on any essential fish habitat and to provide a description of the measures proposed to avoid, mitigate and offset the impact of this permitted discharge on such habitat. EPA finds that the permitted discharge will protect Alaska Water Quality Standards outside of the 100 ft mixing zone of initial dilution and that issuance of this permit is not likely to adversely affect any Arctic char, Arctic cisco, or other species which may occur vicinity of the discharge. EPA provides this fact sheet to describe the discharge, the draft permit, and the permit’s limits, conditions and measures of mitigation.

9.3 Pollution Prevention Act

It is national policy that, whenever feasible, pollution should be prevented or reduced at the source, that pollution which cannot be prevented should be recycled in an environmentally safe manner and that disposal or release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner. The permittee will dispose of wastewater discharges at the facility in accordance with best management practices which will address the provisions of the Pollution Prevention Act.

9.4 Oil Spill Requirements

Section 311 of the Clean Water Act prohibits the discharge of oil and hazardous materials in harmful quantities. Discharges specifically controlled by the draft permit are excluded from the provisions of Section 311 because these discharges are limited to amounts and concentrations which are deemed to be protective of State water quality standards. However, this permit does not preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties for other unauthorized discharges of toxic pollutants which are covered by Section 311 of the Act.

10 MODIFICATION OF PERMIT LIMITS OR OTHER CONDITIONS

When EPA receives information that demonstrates the existence of reasonable cause to modify the permit in accordance with 40 CFR § 122.62(a), EPA may modify the permit. “Reasonable cause” includes alterations or additions to the facility or activity, new federal regulations or standards, new state water quality standards, the completion or modification of total maximum daily loads or wasteload allocations for the receiving water of the facility (also, see 40 CFR § 122.44(d)((1)(vii)(B)), failure of the permit to protect state water quality standards, a change in a permittee’s qualification for net limits, any relevant compliance schedule, the need to incorporate or revise a pretreatment or land application plan, when pollutants which are not limited in the permit exceed the level which can be achieved by technology-based treatment, the correction of technical mistakes and legal misinterpretations of law made in determining permit conditions, and the receipt of new information relevant to the determination of permit conditions. Minor modifications to a permit may be made by EPA with the consent of a permittee in order to correct typographical errors, change an interim compliance schedule, allow for a change in ownership, change a construction schedule, or delete an outfall. Pursuant to 40 CFR § 122.63, such minor modifications may be made without public notice and review.

11 PERMIT EXPIRATION

This permit will expire five years from its effective date. In accordance with 40 CFR § 122,6(a), the conditions of an expired permit continue in force under 5 U.S.C. § 558(c) until the effective date of a new permit when a permittee submits an application for permit reissuance 180 days before the expiration of the permit. Permits which are continued because EPA has not reissued a new permit remain fully effective and enforceable.

12 GLOSSARY OF TERMS AND ACRONYMS

§ means section or subsection.

AAC means Alaska Administrative Code.

ADEC means Alaska Department of Environmental Conservation.

Average monthly discharge means the average of “daily discharges” over a monitoring month, calculated as the sum of all daily discharges measured during a monitoring month divided by the number of daily discharges measured during that month. It may also be referred to as the "monthly average discharge."

Best management practices (“BMPs”) means schedules of activities, prohibitions of practices, maintenance procedures and other management practices to prevent or reduce the pollution of “waters of the United States.” BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

BOD5 means five-day biochemical oxygen demand.

Bypass means the intentional diversion of waste streams from any portion of a treatment facility.

EC means degrees Celsius.

CFR means Code of Federal Regulations.

CWA means the Clean Water Act, (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Public Law 92-500, as amended by Public Law 95-217, Public Law 95-576, Public Law 96-483 and Public Law 97-117, 33 U.S.C. 1251 et seq.

Daily discharge means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

Daily maximum discharge means the highest allowable "daily discharge" and is also referred to as the "maximum daily discharge."

Discharge of a pollutant means any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source" or any addition of any pollutant or combination of pollutants to the waters of the “contiguous zone” or the ocean

from any point source other than a vessel or other floating craft which is being used as a means of transportation.

Discharge Monitoring Report ("DMR") means the EPA uniform national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees. DMRs must be used by "approved States" as well as by EPA.

Effluent limitation means any restriction imposed by the Director on quantities, discharge rates, and concentrations of "pollutants" which are "discharged" from "point sources" into "waters of the United States," the waters of the "contiguous zone," or the ocean.

EOA means Eastern Operations Area.

EPA means U.S. Environmental Protection Agency.

ESA means the Endangered Species Act.

Facility or activity means any NPDES "point source" or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program.

lb means pound.

Maximum means the highest measured discharge or pollutant in a waste stream during the time period of interest.

Maximum daily discharge limitation means the highest allowable "daily discharge."

MGD means million gallons per day.

mg/L means milligrams per liter.

Mixing zone means the zone of dilution authorized by the Alaska Department of Environmental Conservation under 18 AAC 70.032 wherein pollutant concentrations may exceed the criteria of the Alaska Water Quality Standards for the proscribed pollutants.

MLLW means mean lower low water.

NMFS means National Marine Fisheries Service.

National Pollutant Discharge Elimination System ("NPDES") means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318 and 405 of CWA.

OW means EPA Region 10's Office of Water.

P.L. means (U.S.) Public Law.

Point source means any discernible, confined and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

Process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Sanitary wastes means human body waste discharged from toilets and urinals.

Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

Sewage means human body wastes and the wastes from toilets and other receptacles intended to receive or retain body wastes.

SIP means seawater injection plant.

STP means seawater treatment plant.

Technology-based limit means a permit limit or condition based upon EPA's technology-based effluent limitation guidelines or EPA's best professional judgment.

TSS means total suspended solids.

USFWS means U.S. Fish and Wildlife Service.

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

Variance means any mechanism or provision under section 301 or 316 of CWA or under 40 CFR part 125, or in the applicable ``effluent limitations guidelines'' which allows modification to or waiver of the generally applicable effluent limitation requirements or time deadlines of CWA. This includes provisions which allow the establishment of alternative limitations based on fundamentally different factors or on sections 301(c), 301(g), 301(h), 301(i), or 316(a) of CWA.

Water depth means the depth of the water between the surface and the sea floor as measured at mean lower low water (0.0).

Water quality-based limit means a permit limit derived from a state water quality standard or an appropriate national water quality criteria.

Waters of the United States or waters of the U.S. means:
(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
(b) All interstate waters, including interstate wetlands;
(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
(1) Which are or could be used by interstate or foreign travelers for recreational or other purposes;
(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
(3) Which are used or could be used for industrial purposes by industries in interstate commerce;
(d) All impoundments of waters otherwise defined as waters of the United States under this definition;
(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;
(f) The territorial sea; and
(g) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

13 REFERENCES

USEPA. 1991. Technical support document for water quality-based toxics control. Office of Water, Washington, D.C. EPA/505/2-90-001.

USEPA. 1993. Guidance manual for developing best management practices (BMP). Office of Water, Washington, D.C. EPA/833/2-93-004.

USEPA. 1996. NPDES permit writers' manual. Office of Wastewater Management, Washington, D.C. EPA/833/B-96-003.

Figure 1: Location of BPXA's Liberty Island Project.

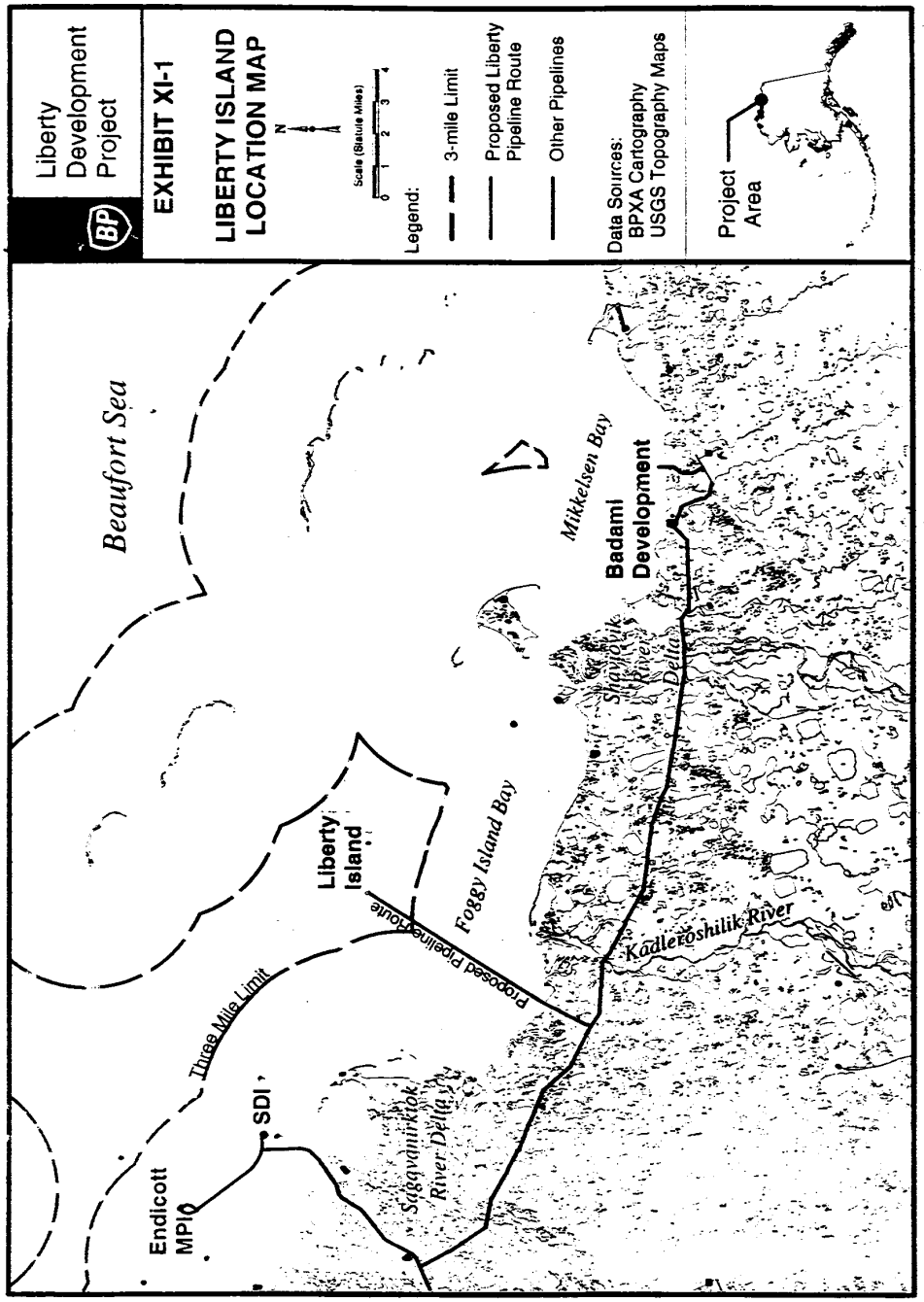

Figure 2: Diagram of BPXA's Liberty Island Project.